

CHARGE NUMBER: 1503  
PROJECT TITLE: MODIFIED SMOKING MATERIALS  
PERIOD COVERED: August, 1984  
PROJECT LEADER: J. G. Nepomuceno

## **I. TOBACCO EXTRUSION**

### OBJECTIVE:

Develop a process for extrusion of foamed tobacco articles.

### STATUS:

Post extrusion equipment for handling and drying the extrudate were evaluated. Minimal drop in OV was observed across the air plenum; however, a significant drop in OV was observed across the 2.5 KW microwave unit. Based on these results, a 6 KW microwave generator has been ordered for evaluation.

The windup rolls were also evaluated. Some extrudate deformation was observed on the multistrand product; however, a significant amount of deformation was observed on the single strand product due to the windup mechanism. Modifications to this windup device is in progress.

A twin screw extruder from Baker-Perkins was evaluated. Results showed that product with moisture levels as low as 10% OV were achieved. Prehydration of the binders prior to mixing with the tobacco was also found to produce low OV product.

### PLANS:

Continue development of post extrusion handling and drying equipment.

Further testing on the Baker-Perkins extruder is planned. Such an extruder is available for rental and/or purchase in January, 1985.

## **II. FILLER BINDER**

### OBJECTIVE:

Develop a process for applying a subjectively acceptable foamed binder to the tobacco filler rod at the maker in order to improve coal strength, reduce loose ends and allow for rod weight reduction.

### STATUS:

Application of a 13% solution of extra cellular material (ECM) to the cigarette at 0.5% level was shown to significantly improve loose ends firmness and coal strength. These cigarettes were also found to be subjectively acceptable by a smoking panel.

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Licorice was found to be an efficient foaming agent as a replacement for sodium lauryl sulfate. Subjective screening of various gums is planned using licorice as a foaming agent.

PLANS:

Further tests evaluating ECM is a foamed binder are planned. Large scale production of ECM is being explored.

Use of tobacco pectin as a binder is also being investigated. A program for extraction of the pectin from scrap tobacco is being formulated.

III. DRY FORMING

OBJECTIVE:

Evaluate dry forming processes for making smoking articles and cigarette components from tobacco, tobacco by-products or non-tobacco materials.

STATUS:

A high pressure sprayer was installed and was found to be capable of atomizing and applying 8% pectin solutions to the dry formed mats.

Cigarettes made from dry formed mats containing 30% stem fines showed marked improvement in cigarette firmness at 550 mg level. These fines are probably bridging across the tobacco shreds forming a more rigid and thus firmer network.

PLANS:

Continue development of dry forming process with present unit. Evaluate alternative dry forming units for production of low density webs.

*John Negmanceno*

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